WHAT OTA IS
WHAT OTA DOES
HOW OTA WORKS

THE UNITED STATES
Office of Technology Assessment
WASHINGTON, D. C. 20510

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Office of Technology Assessment (OTA)

WHAT OTA IS

OTA is a nonpartisan analytical support agency which serves the United States Congress by providing objective analysis of major public policy issues related to scientific and technological change. (See pg. 5)

WHAT OTA DOES

OTA works directly with and for the committees of Congress, providing them with detailed analyses of technological issues and responding to specific questions based on that analysis. (See p. 7)

HOW OTA WORKS

OTA's multidisciplinary staff plans, directs, and drafts all assessments. It draws extensively on the broad technical and professional resources of the private sector, including universities, research organizations, industry, and public interest groups. (See p. 8).

Excerpt From Technology Assessment Act of 1972
Public Law 92-484, 92d Congress, H.R. 10243
October 13, 1972

"FINDINGS AND DECLARATION OF PURPOSE

SEC. 2. The Congress hereby finds and declares that:

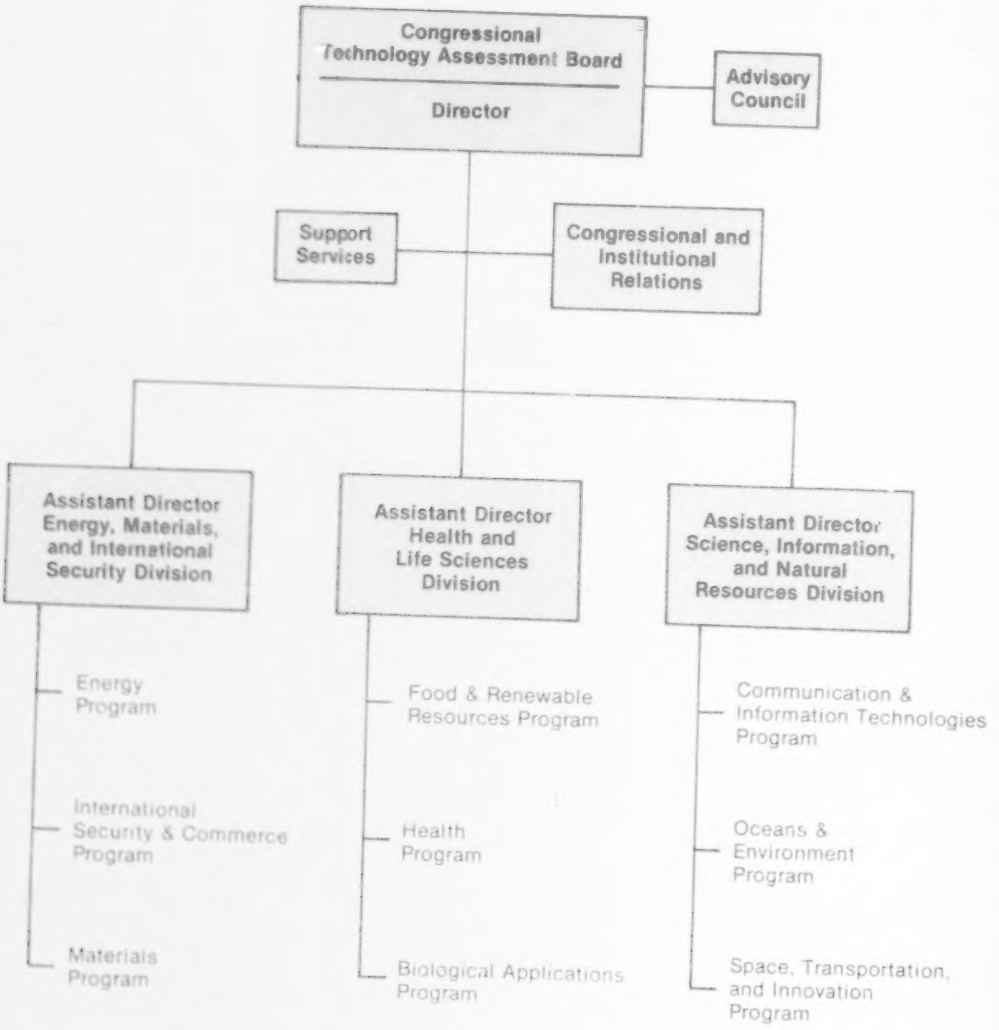
(a) As technology continues to change and expand rapidly, its applications are—

(1) large and growing in scale; and

(2) increasingly extensive, pervasive, and critical in their impact, beneficial and adverse, on the natural and social environment.

(b) Therefore, it is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and considered in determination of public policy on existing and emerging national problems."

OTA Organization Chart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WHAT OTA IS

The Organization

The Congressional Board

A 12-member bipartisan congressional board—six Senators and six Representatives—governs OTA. Board Members are appointed by the President pro tempore of the Senate and the Speaker of the House, respectively. A Chairman and Vice Chairman are elected by the Board. These posts alternate between the Senate and House in succeeding Congresses. The Vice Chairman is traditionally a member of the party opposite that of the Chairman. (Current Board Members are listed on the inside front cover.)

The Council

An Advisory Council of 10 public members eminent in science, technology, and education, appointed by the Board, advises the Board on OTA assessments and other matters. The Comptroller General of the United States and the Director of the Congressional Research Service of the Library of Congress are also members.

The Director

The Director is appointed by the Board and serves as a nonvoting member. He has full authority and responsibility for organizing and managing OTA's resources according to Board policies.

The Staff

OTA has a relatively small, in-house staff of 80 to 90 professionals whose skills span the spectrum of physical, life, and social sciences; engineering; law; and medicine.

The Task

OTA's job is to provide congressional committees with objective analyses of the emerging, difficult, and often highly technical issues of the late 20th century. It explores complex issues involving science and technology, clarifying for Congress both the range of policy options and the potential impacts of adopting each option. OTA does not advocate particular policies or actions, but points out their pros and cons and sorts out the facts.

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Technology Issues

A growing number of major issues of congressional concern—energy, environment, natural resources, national security, health, agriculture, telecommunications, transportation, world trade—are complex, highly technical, involve long-range impacts, and contain social and economic factors.

Take, for example, the issue of long-term energy sources. After three decades of lessening reliance on coal, growing dependence on gas and oil, and continued major public investment in nuclear power, our Nation still has no definitive plan of action to provide a transition over the next several decades to an energy use and supply system that is economically sensible, environmentally acceptable, and sustainable over a long period of time. The security and economic future of our Nation probably depend more heavily on energy than on any single resource. In making decisions on national energy policy, Congress must examine and assess an intricate array of technical realities and uncertainties, scientific knowledge, economic tradeoffs, social values and perceptions of risk and equity, and political judgements and tradeoffs.

During the 1960's, Congress found that failure to consider the complexity, cost, breadth, and long-term implications of technology led to policy decisions that were sometimes inappropriate, ineffective, or worse. In deciding such issues, Congress was all too often forced to rely on inadequate, conflicting, and biased information from outside sources. In 1972, after a long series of studies and hearings, Congress authorized the establishment of OTA as a congressional source of information and analysis that is nonpartisan, expert, objective, and anticipatory.

WHAT OTA DOES

Assessment Requests and Approvals

According to the OTA act, requests for OTA assessments may be made by the chairman of any congressional committee acting alone, or at the request of a ranking minority member, or a majority of committee members; by the OTA Board; or by the OTA Director, in consultation with the Board.

The Board decides whether or not OTA will undertake a requested assessment. First, the OTA staff analyzes the request to determine what resources and time it might require and what modifications it might need to suit OTA's resources and congressional needs. The staff then presents a formal proposal to the Board, which makes the final decision.

OTA Studies and Proposals

The bulk of OTA's work centers on comprehensive, indepth assessments that may take 2 years to complete. OTA also draws upon its studies and current work to provide a variety of shorter responses to meet immediate congressional needs. These timely responses to committees are based on data in current and past assessments. For example, OTA was requested to conduct an assessment on nonnuclear industrial hazardous waste, but committee legislative actions on hazard classification, one of several related issues included in the full report, was expected to be resolved before the assessment could be completed. Consequently, a committee requested a preliminary report on hazard classification, and in response, OTA testified on the subject and issued a technical memorandum on classifying for hazard management.

In other instances, OTA may provide brief, topical "spinoffs" from earlier assessments—such as an analysis of Federal policies affecting coal exports and port development, using previously published reports on the subject of domestic coal production and utilization as its background. OTA also can structure longer range assessments so that the results, in various stages, can be sent to Congress in the form of interim reports.

In addition, OTA provides advice to committee members and staff, presents testimony at hearings, and conducts workshops with committees.

HOW OTA WORKS

Program Teams

The OTA staff consists of skilled professionals with advanced training primarily in the physical, life, and social sciences, and engineering. The OTA staff is organized into various programs, according to issues and subjects. These teams conduct specific assessments, working closely with congressional committee staff. The team develops the overall study plan, performs research, identifies, enlists, and works with the appropriate contractors and consultants, analyzes and integrates their work, and develops the final report. In cases where the subject spans more than one program, a team of professionals from these areas is created.

Panels

Throughout each project, OTA uses advisory panels of experts on a particular subject as a way of ensuring that reports are objective, fair, and authoritative. Such panels include not only distinguished scientists and engineers, but also affected and interested parties from labor, industry, the academic community, public interest groups, State and local government, and the citizenry at large. These panels help to shape OTA studies by defining them initially and critiquing them while in process, and reviewing the reports before they are released.

Private Sector Involvement

The private sector is heavily involved in OTA studies as a source of expertise and perspectives while an assessment is in progress. Contractors and consultants are drawn from industry, universities, private research organizations, and public interest groups.

OTA also works to ensure that the views of the public are fairly reflected in its assessments. It involves the public in many ways—through advisory panels, workshops, surveys, and formal and informal public meetings. These interactions help OTA to identify and take into account contrasts between the perspectives of technically trained and lay citizens.

Release of Reports

After a completed assessment has been approved by the Director, copies of the formal report are sent to the Technology Assessment Board.

for its review and authorization for release. If a majority of the Board does not object, the report is forwarded to the requesting committee(s), summaries are sent to all Members of Congress, and then the report is released to the public. OTA assessments are published by the Government Printing Office and are frequently reprinted by commercial publishers.

Research Coordination

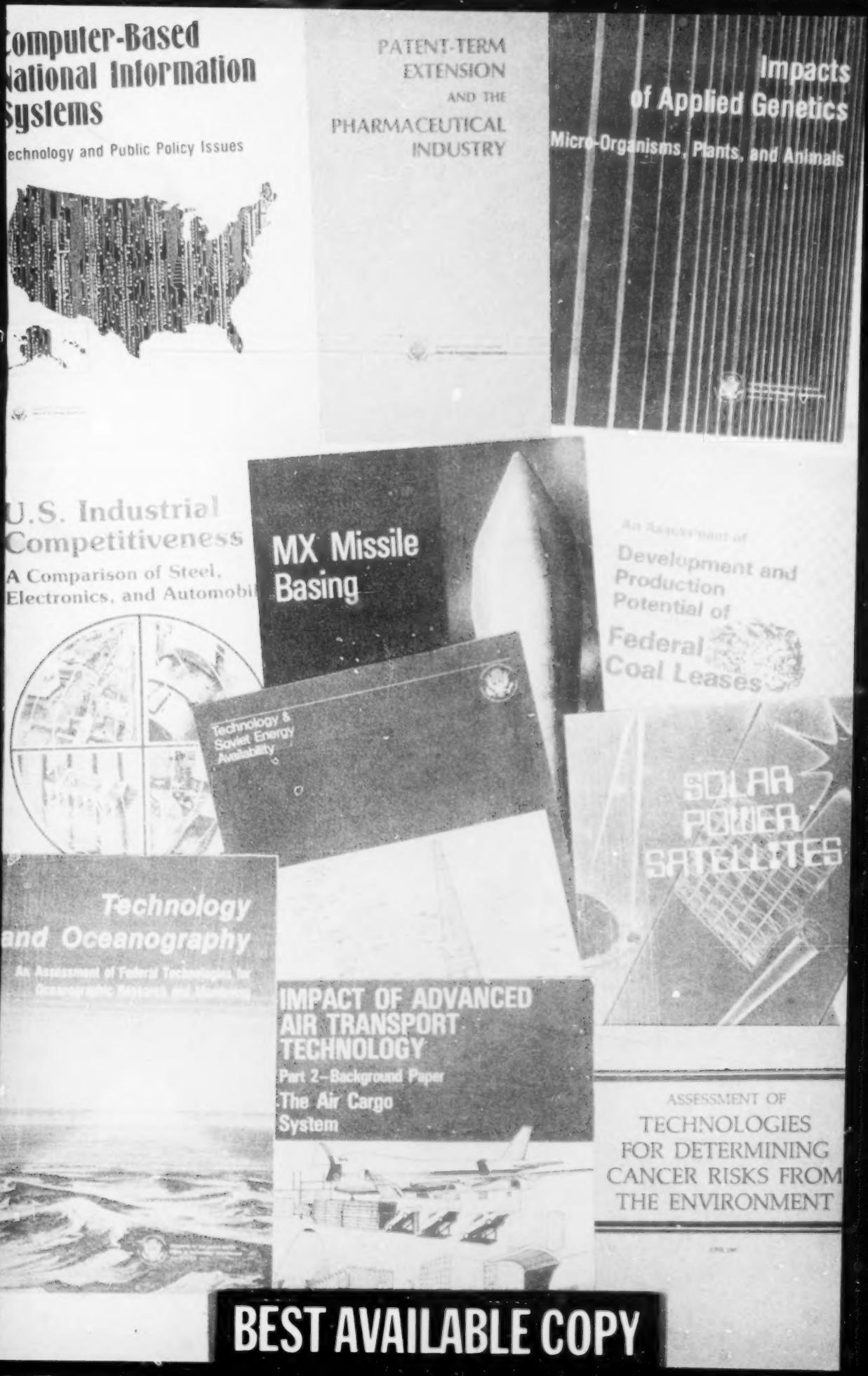
OTA works with the other congressional support agencies—the Congressional Budget Office, the Congressional Research Service of the Library of Congress, and the General Accounting Office—in an interagency Research Notification System. Its purpose is to coordinate activities and exchange information to avoid duplication of effort. Representatives of each organization meet regularly, and biweekly status reports are published in a central directory of congressional research activity.

Similarly, OTA stays in touch not only with the published work of analysts and researchers in Federal agencies and throughout the country, but also with their current activities. Thus, OTA can frequently obtain valuable unpublished information.

Studies in Progress (as of April 1982)

Industrial Energy Use
Synthetic Fuels for Transportation
Industrial and Commercial Cogeneration
Strategic Responses to an Extended Oil Disruption
Potential U.S. Natural Gas Availability
Nonnuclear Industrial Hazardous Waste
Wood: The Material, The Resource
Impact of Technology on Competitiveness of U.S. Electronics Industry
Strategic Command, Control, Communications, and Intelligence Systems
International Cooperation and Competition in Civilian Space Activities
Water-Related Technologies for Sustaining Agriculture in U.S. Arid and Semiarid Lands
Technologies for Sustaining Tropical Forest Resources
Evaluation of Veterans Administration Agent Orange Protocol
Health and Safety Control Technologies in the Workplace
Comparative Assessment of the Commercial Development of Biotechnology
Genetic Screening and Cytogenetic Surveillance in the Workplace
Societal Impact on National Information Systems
Information Technology, Automation, and the Workplace
The Patent System and Its Impact on New Technological Enterprises
Information Technology and Education
Impacts of Atmospheric Alterations
Assessment of Approaches to Wetlands Use

(NOTE: For brief descriptions of these studies in progress—see OTA booklet on "Assessment Activities"—available from OTA's Publishing Office, 224-8996.)


Computer-Based National Information Systems
Technology and Public Policy Issues
PATENT-TERM EXTENSION AND THE PHARMACEUTICAL INDUSTRY
Impacts of Applied Genetics
Micro-Organisms, Plants, and Animals
U.S. Industrial Competitiveness
A Comparison of Steel, Electronics, and Automobi
MX Missile Basing
An Assessment of Development and Production Potential of Federal Coal Leases
Technology & Soviet Energy Availability
SOLAR POWER SATELLITES
Technology and Oceanography
IMPACT OF ADVANCED AIR TRANSPORT TECHNOLOGY
Part 2—Background Paper
The Air Cargo System
ASSESSMENT OF TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT

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Some Completed OTA Assessments and Technical Memorandums

ENERGY, MATERIALS, AND INTERNATIONAL SECURITY DIVISION

Energy Efficiency of Buildings in Cities—Focuses on the interaction of technology and policy for new and existing buildings in U.S. cities for the next two decades.

Energy From Biological Processes—Evaluates the energy potential of plant and animal matter.

Conservation and Solar Energy Programs of the Department of Energy—Analyzes the progress and direction of five major conservation and solar energy programs of the U.S. Department of Energy.

Residential Energy Conservation—Examines the prospects of existing and new technologies for reducing energy consumption in homes.

The Direct Use of Coal: Prospects and Problems of Production and Combustion—Assesses the prospects as well as the environmental, health, safety, and other problems of mining and burning significantly more coal than at present.

Application of Solar Technology to Today's Energy Needs—Evaluates the economic, technical, and environmental impacts of solar energy systems located at the point of use.

A Technology Assessment of Coal Slurry Pipelines—Compares the cost of transporting coal by slurry pipelines to rail for certain routes.

Enhanced Oil Recovery Potential in the United States—Assesses the potential for increasing domestic production of oil by applying developing technologies to known reservoirs.

Gas Potential From Devonian Shales of the Appalachian Basin—Analyzes the potential for producing gas from Devonian shales of the Appalachian Basin.

Technology and Soviet Energy Availability—Analyzes and identifies various levels of availability of U.S. and other Western energy technology and examines the impact on Soviet energy production to 1990.

MX Missile Basing—Assesses the technical feasibility, strategic utility, cost, impact on the region, and future consequences of various MX-basing modes.

Technology and East-West Trade—Examines the economic, military, and political implications of technology transfer to the Communist world.

The Effects of Nuclear War—Examines the social, economic, political, and health effects of various levels of nuclear attacks on the United States and the Soviet Union.

Taggants in Explosives—Assesses the technical feasibility, safety ramifications, costs, and law enforcement utility of a proposal to require that commercial explosives be manufactured with identification and detection taggants.

An Assessment of Development and Production Potential of Federal Coal Leases—Analyzes all mining activities, examines present and potential development value, estimates revenues to the Federal Government and deep-mining feasibility on Federal leases.

Technology and Steel Industry Competitiveness—Assesses how and when new technology can improve the international competitiveness of the U.S. steel industry.

An Assessment of Oil Shale Technologies—Assesses the status and potential of technologies for the development of oil shale resources.

Technical Options for Conservation of Metals: Case Studies of Selected Metals and Products—Explores the kinds and amounts of waste that occur in our use of eight critical metals.

Materials and Energy From Municipal Waste: Resource Recovery and Recycling From Municipal Solid Waste and Beverage Container Deposit Legislation—Examines present and potential technologies for producing energy and recovering resources from municipal solid waste.

Management of Fuel and Nonfuel Minerals in Federal Land—Analyzes Federal laws and practices that govern the exploration, development, and production of fuel and nonfuel minerals in onshore Federal lands.

Analysis of Laws Governing Access Across Federal Lands: Options for Access in Alaska—Analyzes laws, regulations, and policies affecting access across federally owned lands to minerals on non-Federal lands.

Patterns and Trends in Federal Coal Lease Ownership, 1950-80: A Technical Memorandum—Traces the history of the 538 Federal coal leases in existence at the end of 1979.

Nonnuclear Industrial Waste: Classifying for Hazard Management: A Technical Memorandum—Reviews the nature and magnitude of hazardous waste disposal.

World Petroleum Availability: A Technical Memorandum—Examines prospects for world oil supplies and production during the next two decades.

Gasohol: A Technical Memorandum—Discusses the technology and economics of gasohol production.

Benefits of Increased Use of Continuous Casting by the U.S. Steel Industry: A Technical Memorandum—Describes the continuous casting process and the rate of its adoption by U.S. and foreign steel industries.

HEALTH AND LIFE SCIENCES DIVISION

Impacts of Technology on Productivity of Rangelands and Croplands of the United States—Assesses the effects of presently used technologies on the capacity of cropland and rangeland resource base to sustain high levels of production.

U.S. Food and Agricultural Research—Analyzes the scientific base for establishing national, regional, and local research problems and the role of Federal, State, and private institutions in solving these problems.

Environmental Contaminants in Food—Discusses the different types and sources of chemical and radioactive contaminants in food.

Pest Management Strategies in Crop Protection—Reviews the array of tactics currently used to control agricultural pests.

Open Shelf-Life Dating of Food—Addresses the practicality, benefits, and costs of open shelf-life dating of food products.

Drugs in Livestock Feed—Analyzes the use of antibacterial and other drugs to promote growth and prevent disease in livestock.

Emerging Food Marketing Technologies: A Preliminary Analysis—Examines new and emerging technologies for marketing food.

Nutrition Research Alternatives—Evaluates alternative strategies to redirect Federal research toward examining the relationship between nutrition and the changing health problems of Americans.

Organizing and Financing Basic Research To Increase Food Production—Evaluates alternative methods for organizing and funding basic research in the biological sciences.

Perspectives on Federal Retail Food Grading—Assesses the capability of the current food grading system used by the Federal Government.

Cost-Effectiveness Analysis of Inactivated Influenza Vaccine—Examines the cost effectiveness of influenza vaccine.

Assessment of Technologies for Determining Cancer Risks From the Environment—Examines four major issues: estimates of the percentage of cancer due to environmental exposure, technologies used to test for carcinogenicity, methods used for extrapolating data from animals to humans, and regulatory pathways for controlling carcinogens.

The Implications of Cost-Effectiveness Analysis of Medical Technology—Analyzes the feasibility, implications, and usefulness of cost-effectiveness analysis and cost-benefit analysis in health care decisionmaking.

Forecasts of Physician Supply and Requirements—Analyzes the assumptions, methods, and conclusions of the technologies for forecasting both the need for and supply of physicians by specialty and geographical distribution.

A Review of Selected Federal Vaccine and Immunization Policies Based on Case Studies of Pneumococcal Vaccine—Analyzes Federal policies related to four areas of vaccine and immunization activities.

Selected Topics in Federal Health Statistics—Examines data systems used in Federal health programs and offers alternatives for their effective management.

Assessing the Efficacy and Safety of Medical Technologies—Evaluates the need for assessments of the efficacy and safety of medical technologies before they go into widespread use.

Policy Implications of the Computed Tomography (CT) Scanner—Analyzes issues such as efficacy, health planning, use, and financing arising from the widespread adoption of the CT scanner.

Policy Implications of Medical Information Systems—Examines the potential of computer-based medical information systems.

Cancer Testing Technology and Saccharin—Assesses the capacity of current testing methodology to predict the carcinogenic potential of chemicals consumed by humans.

Development of Medical Technology: Opportunity for Assessment—Examines the need for assessing the potential social impacts of emerging medical technologies while they are being developed.

Technology Transfer at the National Institutes of Health: A Technical Memorandum—Examines current technology transfer and assessment activities of NIH.

Compensation for Vaccine-Related Injuries: A Technical Memorandum—Reviews the pros and cons of establishing a Federal vaccine injury compensation program.

World Population and Fertility Planning: The Next 20 Years—Addresses issues of how Government policies and programs view planned birth technologies.

Impacts of Applied Genetics: Micro-Organisms, Plants, and Animals—Examines the application of classical and molecular genetic technologies to micro-organisms, plants, and animals.

Global Models, World Futures, and Public Policy—Evaluates methodologies, findings, and implications of Global 2000 and other global modeling studies.

Radiofrequency Use and Management: Impacts From the World Administrative Radio Conference of 1979—Consists of the record of an 11-week conference held in Geneva, Switzerland, by major world representatives to review and adjust the global allocation of uses of the radio magnetic spectrum.

Computer-Based National Information Systems: Technology and Public Policy Issues—Summarizes and analyzes three U.S. information systems: National Crime Information Center of the FBI, electronic message systems, and electronic funds transfer.

Patent-Term Extension and the Pharmaceutical Industry—Examines the benefits and efficacy of pharmaceutical innovative research and development.

Technological Innovation and Health, Safety, and Environmental Regulations—Evaluates alternative regulatory policies with regard to the effectiveness and efficiency in ensuring that the rate and direction of technological change are compatible with health, safety, and environmental goals.

An Assessment of Technology for Local Development—Addresses the question of local development and various technologies to assist local people in meeting the needs of their own communities.

A Preliminary Assessment of the National Crime Information Center and the Computerized Criminal History System—Identifies issues emanating from use of the FBI's National Crime Information Center and Computerized Criminal History system.

A Preliminary Analysis of the IRS Tax Administration System—Raises questions about the civil liberties, privacy, and due process of millions of Americans that could arise from a new computer system.

The Feasibility and Value of Broadband Communications in Rural Areas: A Preliminary Evaluation—Examines the issues involved in using communication technologies—such as cable television, ground or satellite based microwave links, and automatic broadcast repeater stations—to provide community services in rural areas.

Freshwater Resources Management, Planning, and Policy: An Assessment of Models and Predictive Methods—Considers a wide range of models and predictive methods, advising Congress of the credibility of the techniques used to predict the work of water resource projects and regulations and the societal and environmental effects of these decisions.

Technology and Oceanography: An Assessment of Federal Technologies for Oceanographic Research and Monitoring—Identifies the technologies and management systems that are most effective in researching four areas: weather and climate, marine pollution, undersea mineral exploration, and fisheries.

Transportation of Liquefied Natural Gas—Evaluates the status and trends of ongoing and proposed projects involving the transportation and handling of liquefied natural gas.

Establishing a 200-Mile Fisheries Zone—Evaluates the problems and opportunities presented by the new 200-mile U.S. fishery zone.

Coastal Effects of Offshore Energy Systems—Assesses social, economic, and environmental impacts of three proposed offshore energy systems.

Oil Transportation by Tankers: An Analysis of Marine Pollution and Safety Measures—Examines safety problems of oil tankers on the ecology and quality of the oceans and coastal areas.

Impact of Advanced Air Transport Technology, Part 1: Advanced High-Speed Aircraft—Assesses the economics, feasibility, and uncertainties of developing advanced subsonic and/or supersonic passenger aircraft. **Part 2: Air Cargo: Background Paper**—Analyzes air cargo operations. **Part 3: Air Service to Small Communities**—Assesses the economic impacts of low density service.

Impact of Advanced Group Rapid Transit Technology—Examines second-generation automated guideway transit systems as part of a solution to the need for improved urban mass transit.

Changes in the Future Use and Characteristics of the Automobile Transportation System—Describes energy, environmental, safety, and cost impacts of technological changes.

An Evaluation of Railroad Safety—Evaluates trends in railroad-related accidents.

Automatic Train Control in Rail Rapid Transit—Evaluates the safety, maintenance, and cost of different levels of automation of mass transit trains.

An Assessment of Community Planning for Mass Transit—Assesses the ways cities plan for mass transit.

Coal Exports and Port Development: A Technical Memorandum—Addresses four major issues that are important to Federal policy debate: estimating the potential U.S. coal export market, development of foreign trade policy, the Federal role in dredging harbors, and the outlook for alternative technologies.

Ocean Margin Drilling: A Technical Memorandum—Evaluates the newly proposed public-private cooperative research effort in marine geology.

Recent Developments in Ocean Thermal Energy: A Technical Memorandum—Reviews status of ocean thermal energy conversion (OTEC) developments occurring after OTA's 1978 report on OTEC.

General Information

Contacts Within OTA

(OTA offices are located at 600 Pennsylvania Avenue, S.E., Washington, D.C.)

Office of the Director	224-3695
Congressional and Institutional Relations	224-9241
Energy, Materials, and International Security Division	226-2253
Health and Life Sciences Division	226-2260
Science, Information, and Natural Resources Division	226-2253
Administration Office	224-8712
Personnel Office	224-8713
Publications	224-8996

Reports and Information

To obtain information on availability of published reports, studies, and summaries, call the OTA Publishing Office, 224-8996.

For information on the operation of OTA, the nature and status of ongoing assessments, or the general publications listed below, write or call:

Public Communications Office
Office of Technology Assessment
U.S. Congress
Washington, D.C. 20510
(202) 226-2115

General OTA Publications

OTA Annual Report.—Details OTA's activities and summarizes reports published during the preceding year.

List of Publications.—Catalogs by subject area all of OTA's published reports with instructions on how to order them.

Publication Briefs.—One-page summaries of OTA reports.

Press Releases.—Announce publication of reports, staff appointments, and other newsworthy activities.

OTA Brochure.—"What OTA Is, What OTA Does, How OTA Works."

Assessment Activities.—Contains brief descriptions of assessments presently underway with estimated dates of completion.

Summaries of OTA Reports.—The summaries of most OTA reports published since late 1979 are available, at no cost, as separate, self-mailing booklets.

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